

OBJECTIVE STATEMENT

The purpose was to design, implement and evaluate a Clinical Nurse Specialist (CNS) led, protocol driven influenza vaccination program for outpatients with coronary artery disease (CAD) presenting for cardiac catheterization. The goal was to increase vaccination rate by 5% over baseline by implementing screening and a standing order process.

SIGNIFICANCE

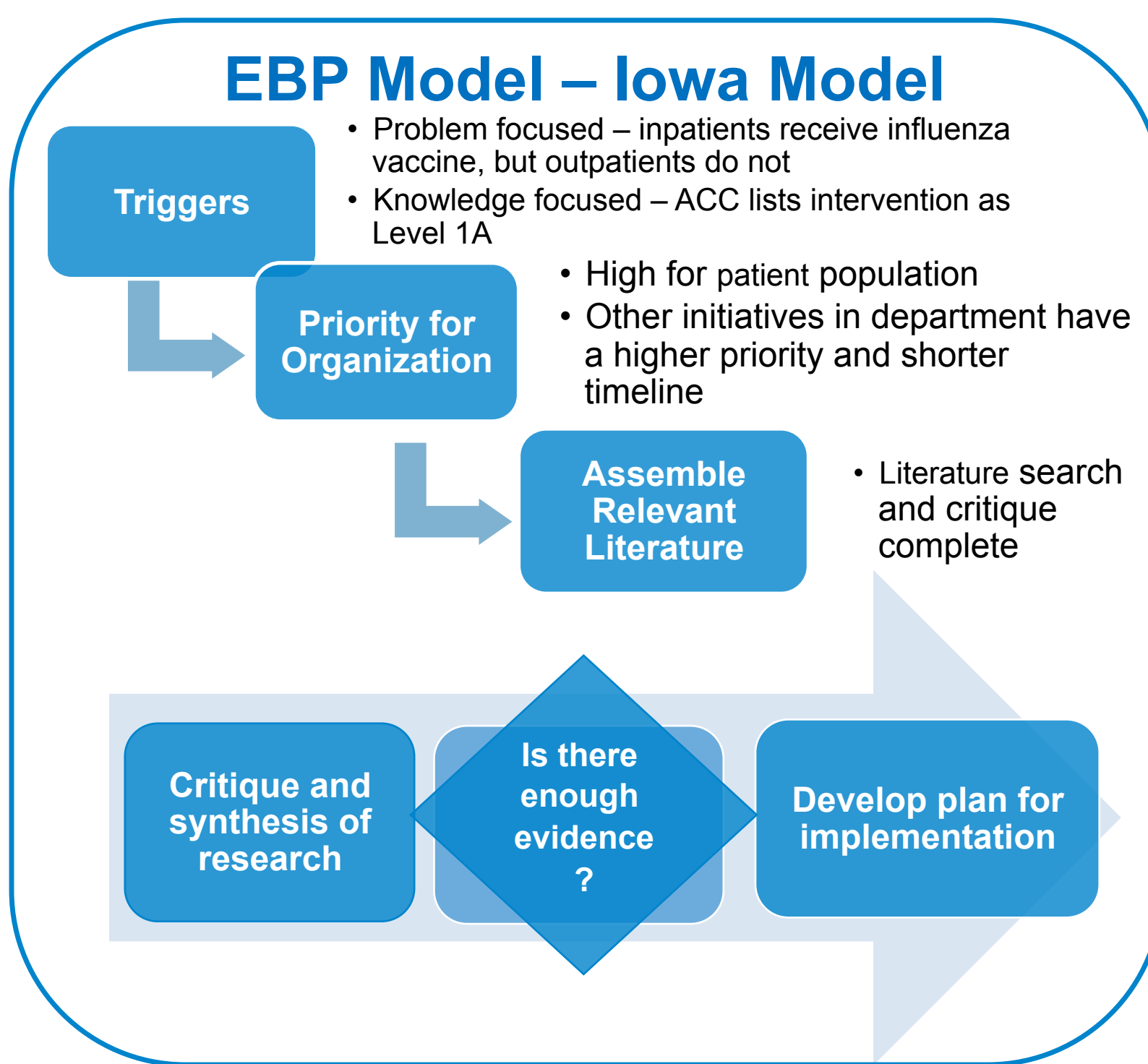
- 12,000-56,000 deaths in the United States/year from influenza
- Significant morbidity and mortality from influenza infection
- Comorbidities such as coronary artery disease (CAD) have a higher mortality risk from flu if not vaccinated
- CAD and influenza infection have a negative symbiotic effect
- Influenza weakens the heart and patient at higher risk for complications
- 50% of adults hospitalized with flu had CAD in 2014-2015
- Udell et al (2013) – vaccination is associated with a decrease in major adverse coronary events (MACE)
 - NNT or vaccinate to prevent 1 MACE is calculated at 58
- Healthy People 2020 Goal - >70% of adults vaccinated
- Level I secondary intervention in NSTEMI and CAD recommended by American Heart Association & American College of Cardiology (ACC)

BACKGROUND

- In outpatients presenting for elective cardiac catheterization:
 - Influenza vaccination was not routinely assess for nor administered due to the possible development of fever.
 - Fever may be a result of a serious complication of the procedure or effect of the vaccine.
- Cardiologist concerns that fever from vaccination may mask serious complication from the procedure
- Synthesis of the evidence revealed that fever development is rare and does not occur in isolation

PICOT QUESTION

In the patient undergoing cardiac catheterization (P), does influenza vaccination (I) within twenty four hours of procedure verses non vaccination (C), influence the risk of fever development (O) within forty-eight hours (T)?



STRENGTH OF THE EVIDENCE

- Studies related to influenza vaccination
 - 1 RCT and 1 cohort study related to PICOT question
 - 1 Retrospective cohort study in post-operative outpatients
- Studies related to fever development post cardiac catheterization
 - Stent infections -36 case studies
 - Vascular Closure Devices – 52 cases
 - Bacteremia – 2 studies 34 years apart
 - Reuse of supplies- non issue in modern era

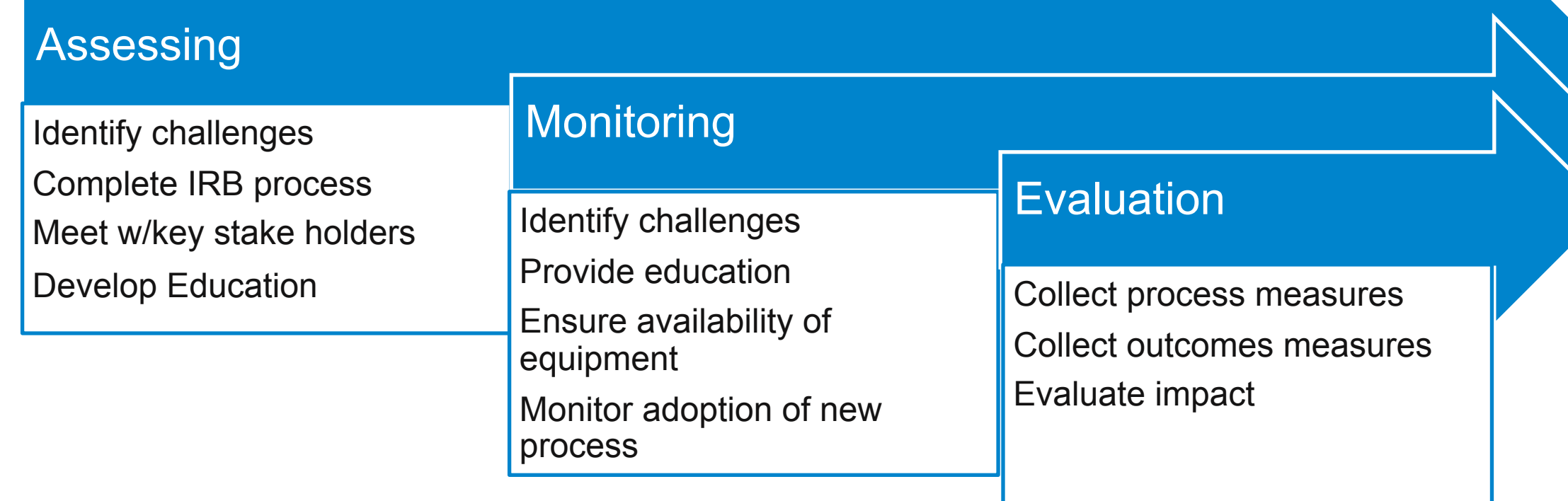
SETTING

- 36 Bed Preparation and Recovery Unit
- Outpatients and inpatients requiring interventional cardiology, interventional radiology and electrophysiology procedures
- 36 Nurses
- Open Monday – Saturday 24 hours/day
- October 2016 - January 2017

INTERVENTIONS

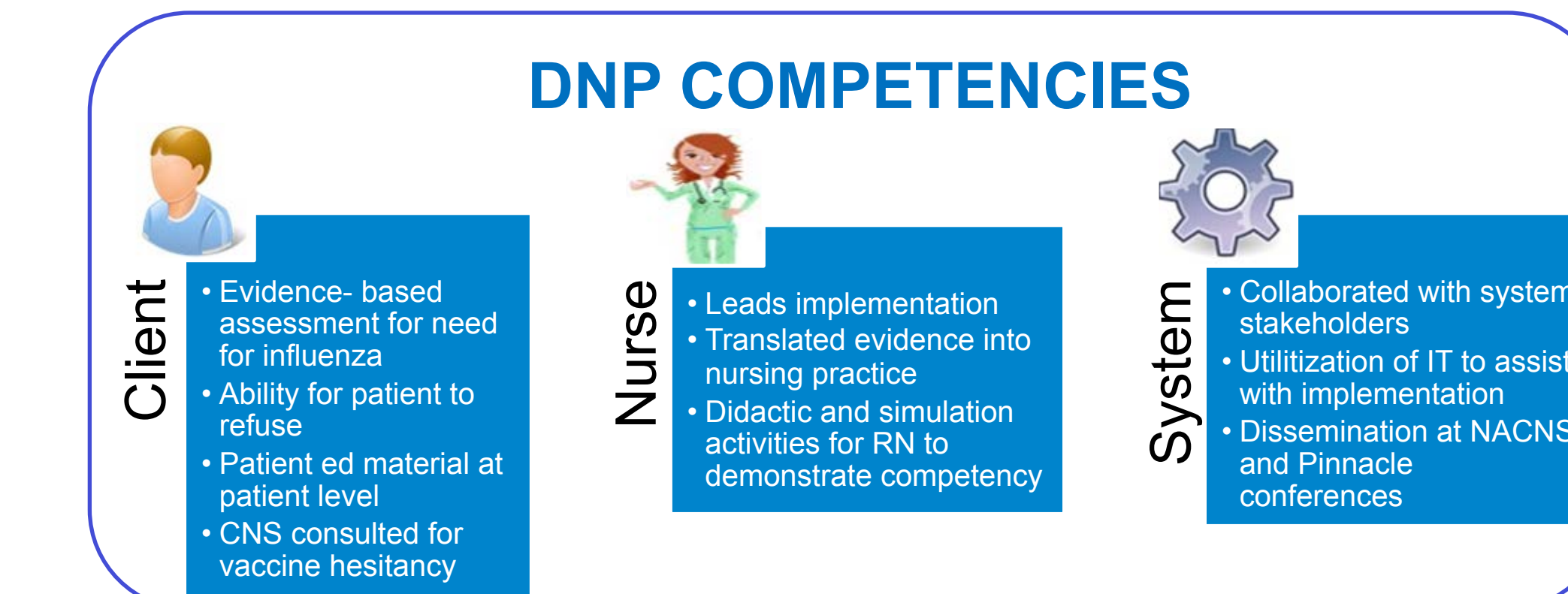
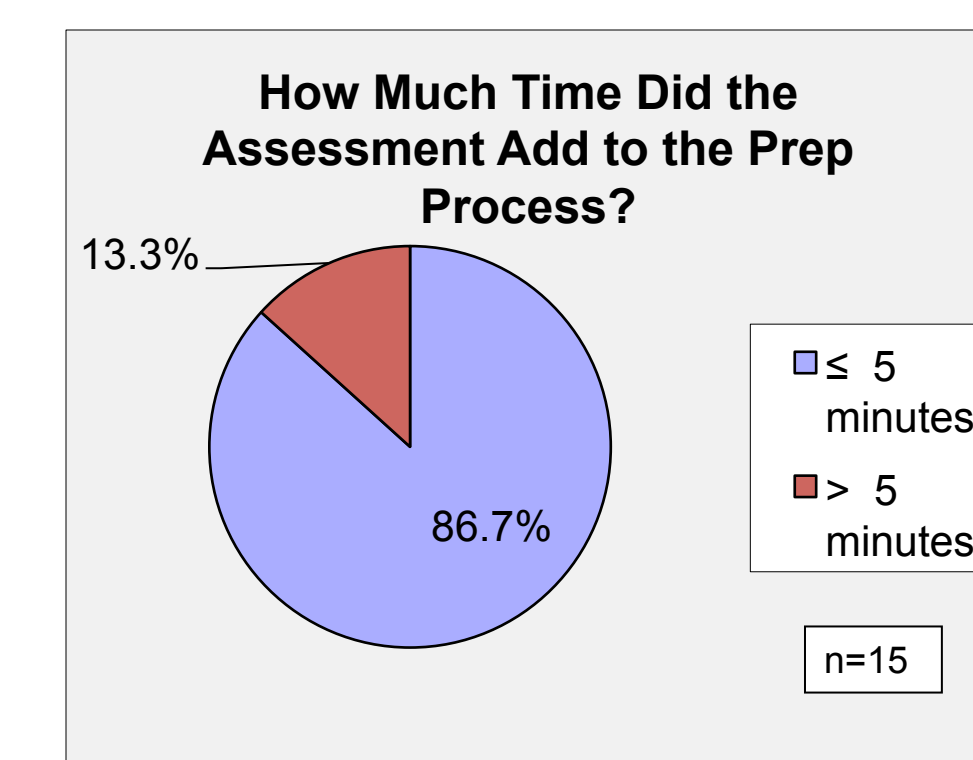
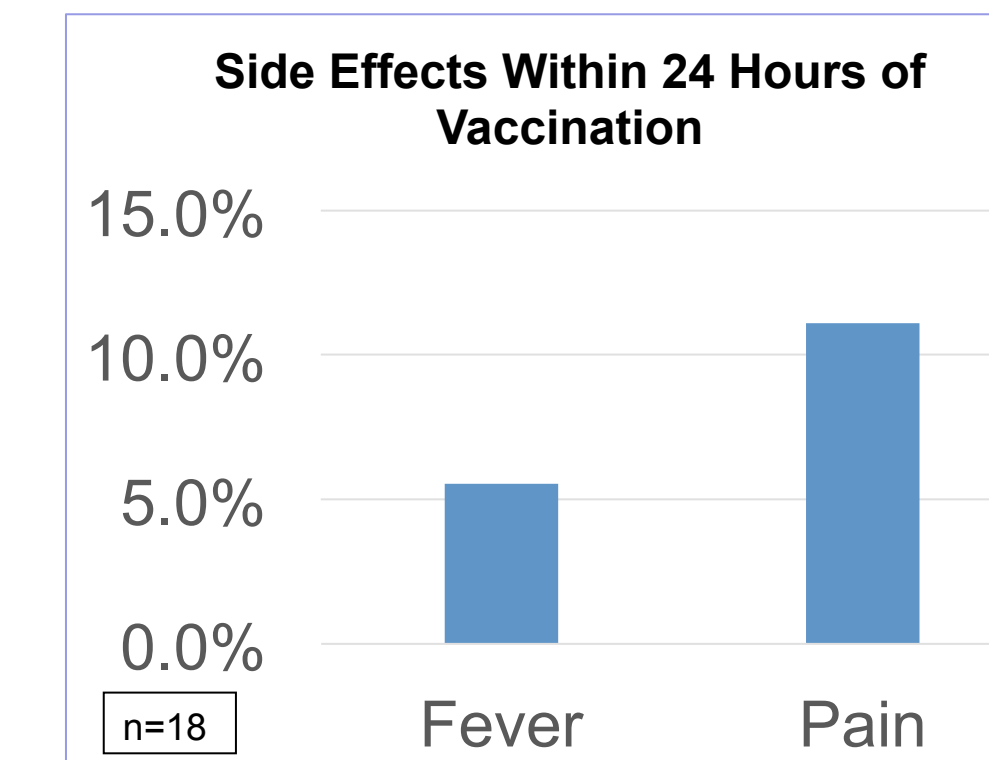
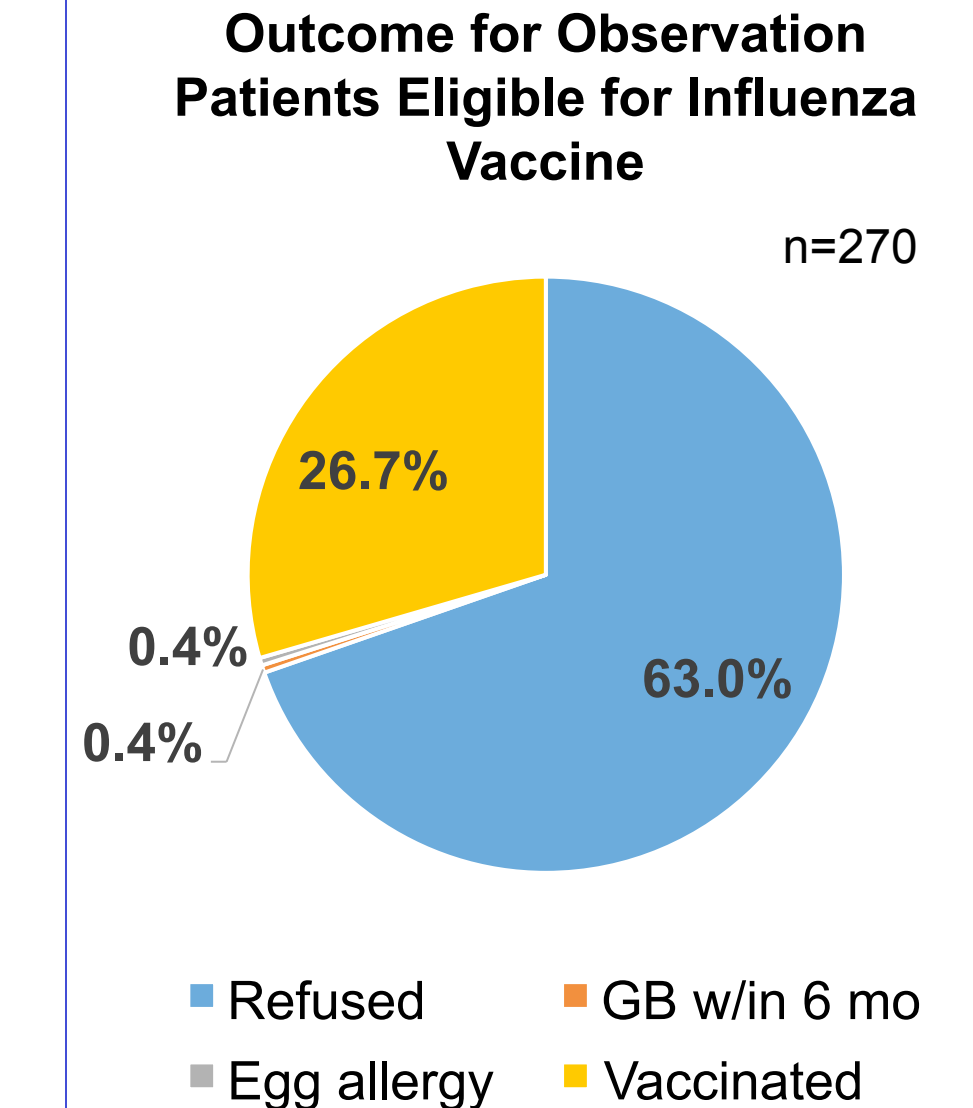
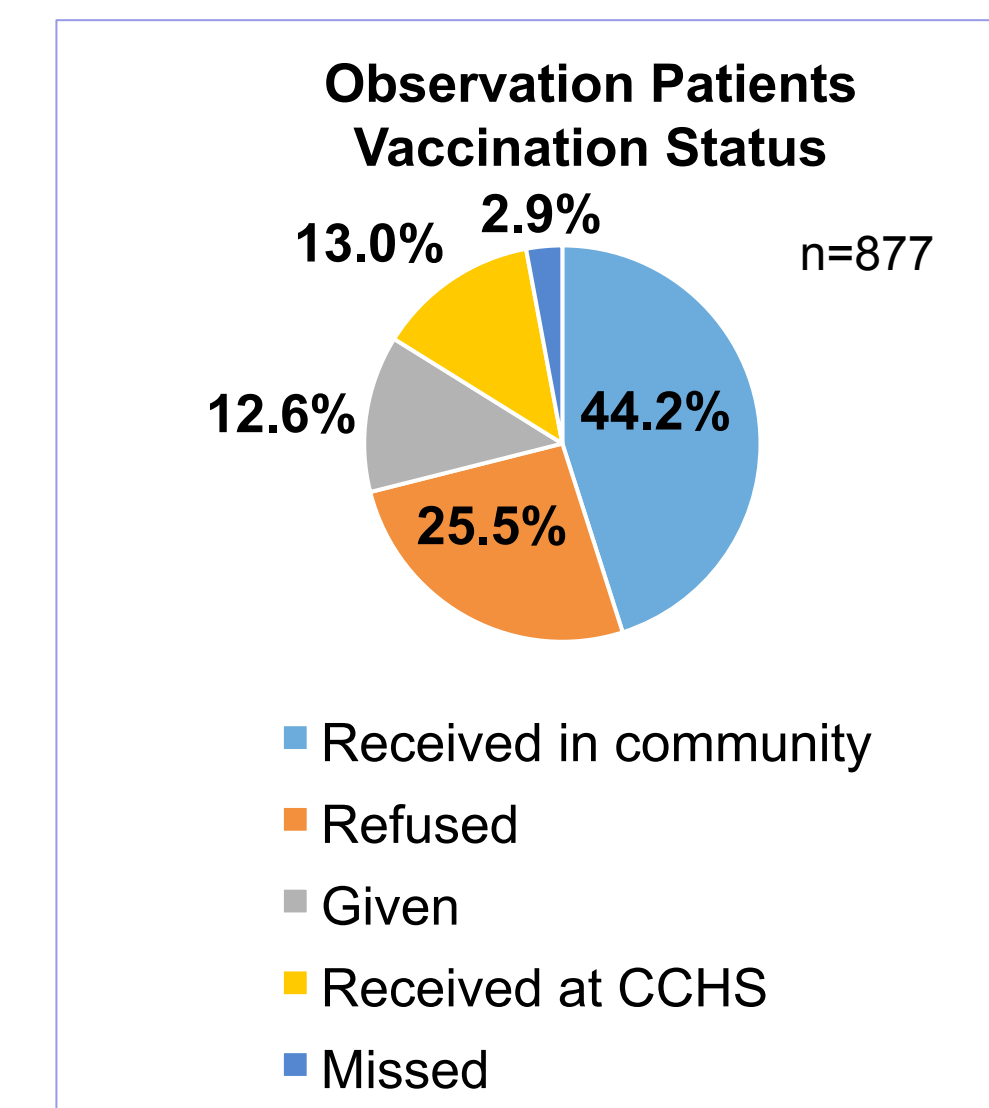
- Didactic and simulation education developed by CNS for RN staff education
- Assessment of eligibility for vaccination prior to procedure
 - Standardized assessment form
- Electronic order per protocol initiated after RN signs the form
- If patient in outpatient status post- procedure, administration of vaccine in recovery phase prior to discharge
- Electronic documentation of vaccine administration
- Communication of vaccine to next provider
 - Discharge instructions sent electronically to DHIN
 - Upload to Delaware's Vaccination Database

OTTAWA'S AME MODEL FOR IMPLEMENTATION



DEMOGRAPHICS / OUTCOMES

- 972 elective cardiac catheterizations Oct 2016-March 2017
- Demographics:
 - 62% male
 - Diagnosis: 34.7% non-obstructive CAD; 42.7% CAD; 22.5% angiographically normal coronaries
 - 78.6% of patients assessed for need for influenza vaccine
- 877 patients in observation status post procedure
 - 47.7% vaccinated prior to day of procedure
 - 27.8% eligible for vaccination
- 270 patients eligible for vaccination
 - 63% refused vaccine
 - 26.7% vaccinated (base line 0.5% 2015-2016 season)
 - 0.4% egg allergy; 0.4% history of Guillain-Barre
- 1 patient with side effect (SE) of fever; 2 patients with SE of pain within 24
- 0 Emergency visits/readmissions within 7 days related to vaccine



CONCLUSIONS

- 26.7% increase in vaccination rate
- Minimal development of fever (1 patient) and pain (2)
- DNP prepared CNS as Vaccination Champion can implement vaccination programs in novel locations
- Vaccination post procedure is safe and effective
- High refusal rate needs investigation
- Minimal increase in nurse work burden